The Ants (Formicidae), and some Myrmecophiles, of Sicily.

By HORACE DONISTHORPE, F.Z.S., F.E.S., etc.

Having spent nearly two months in Sicily this year, I took the opportunity to collect as many insects as I could (with the exception of the Lepidoptera); but naturally devoted most of my time to the ants. I first visited Palermo, and excursions were made to localities near by. Later I went on to beautiful Taormina with its Isola Bella, old Castles, and ancient theatres, mountains, cliffs covered with flowers, and Etna with its drift of smoke, and everlasting snowclad summit towering in the distance over all. Here the remainder, and larger part of my stay was made. During the whole of my sojourn in Sicily rain fell on only three days, the rest of the time the sun shone all day long. The bright blue sky, blue and placid sea, and blazing sunshine almost made one wish at times for a cloud or two and breakers on the beach.

As far as I am aware, only two lists have been published of the ants of Sicily—the first was by Prof. T. de Stefani—"Catalogo degli Imenotteri di Sicilia" [*Naturalista Siciliano*, Vol. **8** (1889)], a second edition of which appeared in 1895 in Vol. 14 of the same periodical. The second was published by the late Professor C. Emery in his "Formiche delle Isole Italiane" [*Annali del Museo Civico di Storia Naturale di Genova*, **66**, 250-52 (1915)]. The latter list consists of 60 different kinds of ants, including species, sub-species, and varieties.

Emery added 12 forms to Stefani's last list. The species enumerated had been collected by de Stefani, Emery, Fiori, Ragusa, von Rottenberg, etc.

I reproduce the whole list, bringing it up to date, but only mention the name of those species I did not take. It will be seen that I have added ten forms (which are marked with an asterisk) to Emery's total.

I must take this opportunity to thank my colleagues Professor Carlo Menozzi for kindly comparing some of my captures with Emery's types, and with kind help in identifying the more difficult species; and Prof. F. Silvestri for kindly naming the Lepismas ("Fish Insects")· I am indebted to Mons. Chopard for the name of the little Myrmecophilous Cricket.

FORMICIDAE.

Subfamily Ponerinae.

Stigmatoma impressifrons, Emery.

Sysphincta mayri, Forel.

Euponera (*Trachymesopus*) *ochracea* ssp. *sicula*, Emery.

Ponera coarctata, Latr.

Ponera eduardi, Forel.—I captured a few ☿ ☿ of this species under stones at Palermo on March 21st.

Ponera ragusae, Emery.

Subfamily Myrmicinae.

Stenamma westwoodi, Westw.

Aphaenogaster (*Aphaenogaster*) *sardoa*, Mayr.

Aphaenogaster (*Aphaenogaster*) *testaceo-pilosasemipolita*, Nyl.—I found this ant to be one of the most abundant species, as it occurred

in every locality I visited, in the towns as well as in the country, nesting in walls, under stones, and in the earth. It was also observed under the same stone in company with several other ants, as will be noted later. It collects seeds—on one occasion, I took a fair sized bean from several ☿ ☿ who were carrying it—many Conifer and other seeds being found in the nests. In nearly all the nests examined, the mite *Laelaps* (*Hypoaspis*) *myrmophilus*, Mich., occurred in some numbers. This mite was originally described by Michael in 1891 from specimens found in numbers with *A. testaceo-pilosa* in Corsica. The "Fish Insect" *Lepisma wasmanni*, Mon., was found with this ant under stones at Mondello, on March 17th. The little white woodlouse, *Platyarthrus hoffmanseggi*, Brdt., and the tiny Spring-tail *Cyphodeirus albinos*, Nic., were also not infrequent. The last two creatures are found with most species of ants everywhere. Of other myrmecophiles the following beetles were found—*Stenosis brenthoides* v. *sicula*, Sol., in a colony under a stone in the Cathedral garden at Monreale on April 3rd; *Coluocera formicaria*, Mots., a small roundish yellow species, at Capo St. Andrea on April 7th, and *Merophysia formicaria* v. *sicula*, Kies., of the same colour and general appearance but narrower, at Taormina on April 17th. Of spiders, *Zodarion elegans*, Sim., was found in a nest under a stone in the Excelsior Palace Hotel at Palermo. This spider is recorded by Wasmann as having been taken by Simon in nests of *Aphaenogaster* in France. Young individuals of *Synageles* sp., and *Chiracanthium* sp., both very ant-like in appearance, were taken under a stone in company with this ant at Taormina on April 18th. A few Aphids were found in a colony of *semipolita* at Taormina.

Aphaenogaster (*Aphaenogaster*) *testaceo-pilosasemipolita* var. *ionia*, Emery.

Aphaenogaster (*Attomyrma*) *subterranea*, Latr.

Aphaenogaster (*Attomyrma*) *crocea* ssp. *sicula*, Emery.

Aphaenogaster (*Attomyrma*) *gibbosa* ssp. *fiorii*, Emery.

Aphaenogaster (*Attomyrma*) *splendida*, Rog.

Aphaenogaster (*Attomyrma*) *pallida*, Nyl.—I found ☿ ☿ on paths in the Hotel gardens at Palermo, and small colonies under stones at Taormina, Capo S. Andrea, Isola Bella, and Mola.

Messor barbarus ssp. *barbarus* var. *capitatus*, Latr. (v. *nigra*, Er. André).—This is another ant one continually meets with walking in tracks, carrying seeds, in gardens, fields, and over roads, etc. It nests under stones, in the ground with grains of earth over the nest and in burrows in banks, etc. The ☿ ☿ collect all kinds of curious and large seeds, and even large beans—in the Hotel garden at Palermo, they were very unhandy with some winged seeds, which always got stuck in the entrances to their nests. On April 16th at Taormina a colony was found under a large stone, whose seed chambers were full of seeds, but also contained some little pebbles, and a quantity of little bits of broken glass! It is difficult to suggest why the ants should have taken the trouble to carry in such useless objects. On March 20th, at Palermo, I picked up a winged female on the road, and many males were resting on one side of some trees near the road. Many guests occurred in the nests of this ant. The one which pleased me most was the little cricket *Myrmecophila* (*Myrmophilina*) *ochracea*, Fisch., as I had never taken one of these insects before. I first found it on April 7th, in a nest of this ant under a stone at Taormina, when seven specimens were

secured. Subsequently it was found in many nests all over the district, and also at Mola. *Lepisma aurea*, Duf., all sizes, *Platyarthrus hoffmanseggi*, and *Cyphodeirus albinos* were generally present with this ant. Of beetles the most interesting was the little oval, yellow Heteromeron, *Oochrotus unicolor*, Luc., which was found on several occasions, sometimes six or more being present in one nest. *Messor barbarus* is its normal host, and J. J. Walker found it in some numbers with that ant at Gibraltar and Tangier. *Colnocera formicaria*, and *Meraphysia formicaria* v. *sicula* were sometimes found at Taormina in company with the *Oochrotus*, or with each other in *Messor* nests. On April 17th, at Taormina in a large colony of this ant a number of larvae of a little Homopteron, *Tettigometra*, sp.? (probably *T. brachycephala*, Fieb., teste China) occurred. Wasmann records 12 species of this genus with ants from different places. At Taormina on April 21st and at Mola on 24th, I found large numbers of a big grey woodlouse, *Porcellionides myrmecophilus*, in several *Messor* nests.

* *Messor barbarus-structor*, Latr., teste Menozzi.

According to Emery's "Ants of Italy," typical *structor* only occurs in France. I found a small colony at the foot of a wall in a field at Palermo, and another under a stone by the side of a cliff road at Taormina. It, however, occurred in the greatest profusion in Palermo itself—very many ♃ ♃ and ☿ ☿ were to be seen at the base of a wall, extending the whole length of a long street from the town to the sea, dragging along beans, grain, bits of vegetables, etc., and entering holes in the pavement at the foot of the wall.

Messor barbarus ssp. *structor* var. *tyrrhena*, Emery.

Oxyopomyrmex santschii, Forel. (*O. santschii* var. *siciliana*, Karawiew, and Emery's Sicilian list).—I captured ☿ ☿ of this ant walking about on the paths in the garden of the Excelsior Palace Hotel at Palermo in March.

Pheidole (*Pheidole*) *pallidula*, Nyl.—Not uncommon in most localities, nesting under stones, and in wood-mould in olive trees, etc. It occurred in the same street, and over the same area, in Palermo, as that described for *Messor structor*. In this place its ♃ ♃ had very brightly coloured heads, and were very conspicuous, causing me to think at first it might be some imported species. On March 17th, in Mondello, in a colony under a stone in which 4 deälated ♀ ♀ were present, I took a specimen of the beetle *Thorictus grandicollis*, Germ. I found this beetle with the same ant at Bordighera, in 1925, and in Hetschko and Wasmann's list of the species of the genus *Thorictus*, *P. pallidula* is given as one of its normal hosts. On April 21st, at Taormina some green Aphids were found with this ant.

Monomorium (*Xeromyrmex*) *salomonis* ssp. *subopacum*, F.Sm.

Monomorium (*Monomorium*) *minutum*, Mayr.

Solenopsis fugax, Latr. (teste Menozzi).—A number of small ☿ ☿ of this little thief ant was found in a nest of *Aphaenogaster semipolita*, under a stone at Capo S. Andrea, on April 9th; and again on April 26th, on Isola Bella, in the wood-mould of a partly hollow olive tree in company with *Pheidole pallidula*, and *A.* (*D.*) *brunneus* var. *nigrobrunneus*. I had hoped that they might be Emery's *S. latro* ssp. *sicula*, but Menozzi who has compared them with that type, has pointed out to me, that they do not agree in several important particulars.

Solenopsis latro ssp. *sicula*, Emery.

Cremastogaster (*Acrocaelia*) *scutellaris*, Ol.—Workers were to be found on most olive and other trees in, and around, Palermo, and Taormina. Several specimens of *Lepisma lucasi*, Grassi, occurred with ☿ ☿ of this ant on a large olive at Taormina, on April 7th.

Cremastogaster (*Acrocaelia*) *laestrygon*, Emery (*auberti-laestrygon*, Emery's Sicilian list).—Colonies were found under stones, etc., at Mondello, and Taormina; one being in the court yard of the ancient Castle at Taormina.

On April 7th, at Taormina, specimens of *Stenosis brenthoides*, occurred in four nests of this ant under stones. A colony, nesting at the roots of a plant on the cliff above Taormina, had constructed an earthen chamber in which a number of Aphids was present. ☿ ☿ were also carrying several white globular objects, which looked like Coccids.

Cremastogaster (*Orthocrema*) *sordidula*, Nyl.—Not uncommon at Taormina. On April 16th, a large colony under a stone contained a number of larvae of a *Tettigometra* (possibly *T. longicornis*, Sign., teste China. Edmonds sent me specimens of this species which he had taken with *C. sordidula* var. *flachi*, in Salonika in 1917), which the ☿ ☿ quickly carried into safety.

Leptothorax (*Leptothorax*) *rottenbergi*, Emery.—I never found the nest of this ant—a few ☿ ☿ were taken walking on a wall at Taormina, and a deälated ♀ walking over a rock.

* *Leptothorax* (*Leptothorax*) *niger*, Forel.—This species had not been found in Sicily before. On April 7th, I found a colony, nesting in a tuft of grass, which consisted of 3 deälated ♀ ♀, and many ☿ ☿ and brood; and on 18th, a small colony was found in an earth cell under a stone in the centre of a nest of *Camponotus atlantis-nylanderi*—one deälated ♀ and a certain number of ☿ ☿ present. Both these colonies occurred at Taormina, where I also took odd ☿ ☿ walking on rocks. On April 24th, I found a small colony under a stone in the Castle grounds at Mola.

Leptothorax (*Leptothorax*) *tuberum*, ssp. *tuberum*, F.

Leptothorax (*Leptothorax*) *tuberum* ssp. *nylanderi*, Först.

Leptothorax (*Leptothorax*) *tuberum* ssp. *interruptus*, Schenck.

Leptothorax (*Leptothorax*) *tuberum* ssp. *angustulus*, Nyl.—I took a few ☿ ☿ of this ant walking on a wall at Taormina on April 8th.

Leptothorax (*Leptothorax*) *tuberum* ssp. *angustulus* var. *kraussei*, Emery. (var. *obscurior*, Emery's Sicilian list)

Leptothorax (*Temnothorax*) *recedens*, Nyl.

Tetramorium caespitum ssp. *caespitum*, L.

**Tetramorium caespitum* ssp. *caespitum* var. *brevicornis*, Emery.—I found a large colony of this variety, which is new to Sicily, under a stone at Taormina on April 22nd. It has occurred in Sardinia and Corsica.

Tetramorium caespitum ssp. *semilaeve*, Er. André.—This subspecies was abundant in all districts, nesting under stones. It seemed to me to be a more gentle ant than true *caespitum*, and the form to be next mentioned, and a number of myrmecophiles were found in its nests. Two colonies at Palermo occurred under the same stones as *Aphaenogaster semipolita*. The following beetles occurred in its nests—*Eustemmus antidotus*, Germ., Isola Bella, April 11th. *Thorictus grandicollis* at Palermo on March 16th. *Stenosis brenthoides*, Rossi, Taormina, April 7th, *Colnocera formicaria* in several colonies at Taormina.

Dichillus (*Dichillocerus*) *pertusus*, Kies., occurred in several nests at Taormina and Mola, etc., sometimes two specimens in the same nest. *Lepisma aurea*, Duf., *Platyarthrus hoffmannseggi* and *Cyphodeirus albinos* were also present.

**Tetramorium caespitum* ssp. *ferox* var. *diomedaea*, Emery.—I found colonies of this form which had not been found in Sicily before, at Mondello, Castelbuono, Capo St. Andrea, Taormina and Mola. In one colony at the last mentioned locality, in which a very small deälated ♀ occurred, many little seeds were present. Another colony found at Taormina, on April 14th, contained many winged females. Most of the colonies were large, and populous, the ☿ ☿ being fierce. On April 12th, I noticed in the square in Taormina a colony of this ant which was nesting in the stone-work of the gutter near the curb, and near by was a colony of *Messor barbarus* v. *capitatus*. The ☿ ☿ of the latter kept bringing out bits of plaster and stone from the entrances of their nest; the *Tetramorium* were walking in files to a dead bee. When a *Messor* got near to a *Tetramorium* it appeared to salute, but was driven off, as also when it approached the bee, by the smaller ants. Sometimes a *Tetramorium* ☿ attacked and closed with a *Messor*, when they rolled over together, but as soon as the *Messor* could escape, it ran away, the *Tetramorium* walking slowly off unhurt. On March 17th at Mondello several specimens of the Proctotrupid *Conostigmus allotropus*, K., were present in a populous colony under a stone. The only myrmecophile I ever found with this ant.

(*To be concluded.*)

Heterocera from Macedonia, Gallipoli and Central Greece.

By P. P. GRAVES, F.E.S.

(*Concluded from page 158*).

Liparidae.

939 *Lymantria dispar*, L. Gall., Mac. Arm. VI.
913. *Euproctis chrysorrhea*, L. (*auriflua*, Hmps.) Mac. Sal. 18.VI.

Sphingidae.

752a *Celerio lineata*, ssp. *livornica*, Esp. Mac. Arm. 21.V.-23.VI.
768 *Macroglossum stellatarum*, L. Mac. Various localities. Gall.

Ceruridae.

789 *Exaereta ulmi*, Schiff. and Denis. Mac. Paiz. 7.V.1918.
?824 *Notodonta tritophus*, Esp=*torva*, Hb. Greece. What appears to be an aberrant female of this sp. is among Capt. Wolley Dod's Vralo captures. It is dated 7.IV.1918. New to Greece.
830 *Spatalia argentina*, Schiff. Mac. Paiz. 7.V.1918.

Geometridae.

3687 *Myinodes interpunctaria*, HS. Gall. One worn specimen.
2859 *Aplasta ononaria*, Fuessl. Gall. One only. Mac. Single specimens Yan. 9.VI. and Arm. 10.VII. Greece. 11&12. V.1919 from Masili and Vralo respectively.
3683 *Orthostixis cribraria*, Hb. Gall. One spec.